

INTRODUCTION AREA I1 Study course overview: **3CP**
Welcome Event S (1|1)
Lecture Series L (2|2)

Compulsory module

Course achievement

CORE AREA min 38 CP

(SWS|CP)

120 CP in total

CORE AREA 1: Cellular & Organismic Biochemistry (8-27 CP)
at least 2 modules

C1.1 Advanced Cell Biology (3-5 SWS|4-7 CP): L (1|2) + P (2|3) or/and S (2|3)

C1.2 Cellular and Molecular Neurobiology (4-6 SWS|5-8 CP): L (2|3) + P (2|2) or/and S (2|3)

C1.3 Cellular Biochemistry (2 SWS|4 CP): L + self study (2|4)

C1.4 Infection and Pathobiology (4-6 SWS | 6-8 CP): S (2|4) & L (2|2) or/and L (2|2)

CORE AREA 2: Molecular Biochemistry (6-24 CP)
at least 2 modules

C2.1 Advanced Methods in Biochemistry (2-4 SWS|3-7 CP): L (2|3) & optional S (2|4)

C2.2 Membrane Biology (2-3 SWS | 4-5 CP): L + self study (s|4) & optional S (1|1)

C2.3 Advanced Molecular Biology & Microbiology (2-3 SWS | 3-5 CP): L (2|3) + P (1|2)

C2.4 Biological Synthesis (4 SWS | 7 CP): S (2|4) L (2|3)

CORE AREA 3: Biochemical Methods (8-24 CP)
at least two modules & at least 1 practical module

C3.1 Methods for Structural Biology and Biophysics (2-4 SWS | 3-7 CP): L (2|3) & optional S (2|4)

C3.2 Advanced Methods in Biochemistry and Biophysics (4 SWS | 5 CP): P Reconstitution (2|2,5) & P Electrophysiology (2|2,5)

C3.3 Advanced Methods in Membrane Biochemistry (1,5-5,5 SWS | 3-9 CP): At least 2: P Solution-NMR (1|2) / P Mass Spectrometrie (0,5|1) / P Solid-state NMR (1|2) / P X-Ray (1|2) / Introduction to biological electron microscopy with image processing (2|2)

C3.4 Structural Bioinformatics (2SWS | 3 CP): L+T (2|3)

APPLIED RESEARCH **34 CP**

A1 Group Research Proposal S (2 SWS | 6 CP) **A2 Developing a research project Pro** (8 CP)

A3 Research Internships I & II (2x30 working days | 20 CP)

30 CP

A4 Master Thesis
6 months

ELECTIVE AREA max. 15CP (some imported modules are in German)

Focus Biochemistry

E1.1 Advanced biophysical methods (4 SWS|5 CP): S (2|3) + P (2|2)

E1.2 Solid state NMR spectroscopy (4-7 SWS|7-10 CP): L (2|4) + P (3|3) and/or S (2|3)

E1.3 Liquid-state NMR spectroscopy (4-7 SWS|6-9 CP): L (2|3) + L (2|3) and/or P(3|3) and/or S(2|3)

E1.4 EPR spectroscopy (4-7 SWS|7-10 CP): L (2|4) + P (3|3) or/and S (2|3)

E1.5 Einzelmolekülspektroskopie und hochauflösende Mikroskopie (4 SWS|6 CP): V (2|4) + Ü (2|2)

E1.6 Biophysik (2-12 SWS|3-15 CP) V+ Ü (2,5+1,5|5) or V2 (2|3) optional: S (2|3) und/oder P (4|4)

E1.7 Röntgenstrukturanalyse (3-7 SWS|5-9 CP): V (3|5) optional P (4|4)

E1.8 Modeling and simulation of biomolecules (2+2 SWS|3+3 CP): L + T

E1.9 Struktur und Funktion von Biomakromolekülen (4 SWS|7 CP): V (3|5) + Ü (1|2)

E1.11 Modern statistical data analysis f. practioners (4 SWS|5 CP): L + T

Focus Chemistry

E1.12 Fortgeschrittene Organische Chemie (3 SWS|5 CP): V (2|3) + Ü (1|2)

E1.13 Chemische Naturstoff-synthese (4 SWS|7 CP): V (3|5) + Ü (1|2)

E1.14 Chemie der Heterozyklen (3 SWS|5 CP): V (2|3) + Ü (1|2)

E1.15 Highlights der Organischen Chemie & Chemischen Biologie (2 SWS|4 CP): S

E1.16 Laserchemie (3 SWS|5 CP): V (2|3) + Ü (1|2)

Focus Biology

E1.17 Molecular Biosciences (4 SWS | 6CP): 4xL (1|1,5) out of 6

E1.18 Toxikologie & Ökologie (4 SWS|6 CP): 2 aus 3 V (2|3)

E1.19 Fortgeschrittene Chem. Biologie (2 SWS|5 CP): V + Ü

E1.20 Fortgeschr. Chem. Biologie –Praktk. (4 SWS|6 CP): P (3,5|5) + S (0,5|1)

Focus Pharmacology

E1.21 Pharmacology (4 SWS|6 CP): S

E1.22 Computational drug design (4 SWS|5 CP): L (2|3) + P (2|2)

E1.23 Wirkstoff-/Arzneimittelentwicklung (2,5-4 SWS|5-6 CP): Medizialchemie oder Biochemie V (2|3) + S (0,5|2) opt. S (1,5|1)

Free elective area max. 10CP

E2.1 Schlüsselqualifikationen (D/E; 2-6 SWS|3-10 CP): S Mentoring/Tutoring (2|3), Patentrecht (2|3), Scientific English (2|3), Deutsch als Fremdsprache(2|3), online Sprachkurs (2|4)

E2.2 Wirtschaftswissenschaften (3-9 SWS |5-15 CP): V+Ü: Einführung in die Volkswirtschaftslehre (5 CP) Accounting 5 CP Marketing 1 (5 CP) Finanzen 1 (5 CP) Politik und Wirtschaft (5 CP) Mikroökonomik 1 (10 CP)